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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,625	12/22/2003	Arthur M. Krieg	C1039.70073US00	9416

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EXAMINER	
MINNIFIELD, NITA M	

ART UNIT	PAPER NUMBER
1645	

DATE MAILED: 07/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/743,625	KRIEG ET AL.	
	Examiner	Art Unit	
	N. M. Minnifield	1645	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *19-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *19-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892) 9pg.
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *12/22/03; 3/10/04*. 10pgs.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

So:D

DETAILED ACTION

1. Applicants' preliminary amendment filed December 22, 2003 is acknowledged and has been entered. Claims 1-18 have been canceled. New claims 19-39 have been added. Claims 19-39 are now pending in the present application.

The Office acknowledges Applicants' request for interference with US Patent 6498148. However, this interference request will be considered once the pending claims have been deemed allowable.

2. The information disclosure statement filed December 22, 2003 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Copies of references that were available to the Examiner have been considered and initialed on the attached Form 1449. The Examiner has not considered references that were not available. If Applicants desire all references to be considered, a copy should be provided in response to this Office Action.

References found in application 09/818918 have been considered. References found in 08/738652 (now US Patent 6207646) are not readily available to the Examiner. Currently, this application (08/738652) is at the Board of interferences.

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 19-39 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-49 of U.S. Patent No. 6239116. Although the conflicting claims are not identical, they are not patentably distinct from each other because both the application and patent have claims directed to method of administering an immunostimulatory oligonucleotide to a subject. The claims of the application recite that the method is for treating asthma and the patent claims recite the method is for inducing IL-6 in a subject. Treatment of asthma by administering the immunostimulatory oligonucleotide induces a Th1 immune response, which includes inducing the cytokine IL-6. It

would be obvious that the recited steps in the methods claim would achieve both results, treatment of asthma and inducing IL-6.

5. Claims 19-39 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 42-47, 49-53, 56, 57, 82-85, 90, 92, 94, 96, 98, 100, 102 and 103 of copending Application No. 09/337584. Although the conflicting claims are not identical, they are not patentably distinct from each other because both applications recite claims directed to a method for treating asthma in a subject, comprising administering to the subject an effective amount for treating asthma in the subject of an immunostimulatory oligonucleotide.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

6. Claims 19-39 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 46, 52, 64, 71, 72, 74 and 80 of copending Application No. 10/613739. Although the conflicting claims are not identical, they are not patentably distinct from each other because both applications recite claims directed to a method comprising administering to the subject an immunostimulatory oligonucleotide. Although 10/613739 does not recite treatment for asthma, this would be the result since the methods steps are the same.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

7. Claims 19-39 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 22, 23, 31, 32 and 34-37 of copending Application No. 10/769282. Although the conflicting claims are not identical, they are not patentably distinct from each other because both applications recite claims directed to a method comprising administering to the subject an immunostimulatory oligonucleotide. Although 10/769282 does not recite treatment for asthma, this would be the result since the methods steps are the same. Application 10/769282 recites a method of modulating an immune response, the administration of the immunostimulatory oligonucleotide modulates a Th1 immune response, which is the immune response modulated in a asthmatic subject that has received the immunostimulatory oligonucleotide.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

8. Claims 19-39 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 19-29 and 31-33 of copending Application No. 10/894862. Although the conflicting claims are not identical, they are not patentably distinct from each other because both applications recite claims directed to a method comprising administering to the subject an immunostimulatory oligonucleotide. Although 10/894862 does not recite treatment for asthma, this would be the result since the methods steps are the same. Application 10/894862 recites a method of inducing a Th1 immune response and suppressing a Th2 immune response, the administration of the immunostimulatory oligonucleotide modulates a Th1 immune response, which is

the immune response modulated in a asthmatic subject that has received the immunostimulatory oligonucleotide; the Th2 immune response is suppressed.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

9. Claims 19-39 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 42, 45-53, 57-60 of copending Application No. 09/337896. Although the conflicting claims are not identical, they are not patentably distinct from each other because both applications recite claims directed to a method comprising administering to the subject an immunostimulatory oligonucleotide. Although 09/337893 does not recite treatment for asthma, this would be the result since the methods steps are the same. Application 09/337893 recites a method for redirecting a subject's immune response from a Th2 to a Th1 immune response, the administration of the immunostimulatory oligonucleotide modulates a Th1 immune response, which is the immune response modulated in an asthmatic subject that has received the immunostimulatory oligonucleotide; the Th2 immune response is suppressed.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

10. It is noted that there are possibly more double patenting rejections that could be made in view of the numerous patent applications that Applicants have filed. A list of pending applications claiming the same or similar subject matter would be greatly appreciated.

11. Claims 19-39 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method for treating asthma in a subject (murine model), comprising administering to a subject an immunostimulatory oligonucleotide (CpG, specifically SEQ ID NO: 10), does not reasonably provide enablement for a method for treating asthma in a subject (animal or human), comprising administering to a subject (animal or human) an immunostimulatory oligonucleotide (CpG, the scope of the myriad possible immunostimulatory oligonucleotides encompassed by the claims). The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

The claims are directed to a method for treating asthma comprising: administering to a subject (human, dog, cat, horse, and cow) an immunostimulatory oligonucleotide comprising an immunostimulatory motif comprising a 5'-cytosine-guanine-3','wherein the immunostimulatory oligonucleotide is administered without an allergen in an amount effective to treat asthma. The claims define various immunostimulatory oligonucleotides as well as encompassing numerous immunostimulatory oligonucleotides (CpG oligonucleotide formulas are 5'$X_1X_2CGX_3X_4$ 3', wherein X_1, X_2, X_3, and X_4 are any nucleotide; X_1CGX_2, wherein X_1 is G and A and X_2 is T and C). The claims define various routes of administration and delivery formulations.

It is noted that the specification teaches that the mechanism of immune response in the treatment of asthma is a redirecting of the subject's immune response from a Th2 to a Th1 immune response. The specification teaches that certain nucleic acids containing unmethylated CpG dinucleotides activate

lymphocytes in a subject and redirect a subject's immune response from a Th2 to a Th1 (e.g. by inducing monocytic cells and other cells to produce Th1 cytokines, including IL-12, interferon gamma and GM-CSF) (see pp. 7-8). "In addition, the nucleic acid sequences can be administered to stimulate a subject's response to a vaccine. Further, by redirecting a subject's immune response from Th2 to Th1, the instant claimed nucleic acid molecules can be administered to treat or prevent the symptoms of asthma. In addition, the instant claimed nucleic acid molecules can be administered in conjunction with a particular allergen to a subject as a type of desensitization therapy to treat or prevent the occurrence of an allergic reaction." (p. 8, l. 11-15) The specification defines asthma as well as allergy and allergens (see p. 12).

Example 12 of the specification (pp. 52-53) teaches a murine model of asthma. Mice were immunized SEA to induce a Th2 immune response (e.g. production of IgE antibody). IgE antibody production is known to an important cause of asthma. The immunized mice were then treated with oligonucleotides; SEQ ID NO: 10 was the experimental immunostimulatory oligonucleotide and SEQ ID NO: 11 was the control oligonucleotide. Mice were sacrificed and whole lung lavage was performed to harvest airway and alveolar inflammatory cells. Cytokine levels were measured, RNA was isolated for northern blots and a histological examination of lungs was performed.

SEQ ID NO: 10 (TCCATGACGTTCCTGACGTT), at low doses, can give protection (figure 12). Suppression of eosinophilic inflammation was associated with a suppression of a Th2 response and induction of a Th1 response; cytokines that increase in relation to a Th1 immune response include interferon-gamma, TNF-beta and IL-12. Figure 15 shows that administration of an oligonucleotide

can redirect the cytokine response of the lung to production of IFN-gamma, indicating a Th1 type of immune response. The specification indicates that Figures 9-15 show that CpG/SEA induced inflammatory cells, eosinophils, to be present and generated macrophages; higher IL-12 was induced, IL-4 was reduced and IFN-gamma production increased.

The specification does not teach that any of the other myriad of possibilities of CpG having the claimed formulas can be used to treat an asthmatic subject (redirecting a Th2 to Th1 immune response), animal or human.

The state of the art is unpredictable with regard to asthma treatments using CpG. CpG containing oligonucleotides are currently being investigated for exerting their immunotherapeutic effects in various organisms. Biological responses to the administration of CpG containing oligonucleotides vary, however, depending on the mode of administration and the organism (see McCluskie et al Molecular Med., 1999, 5/5:287-300 in its entirety, and especially on p. 296; see Krieg et al, Immunology Today, 2000, 21/10:521-526, especially p. 524). Wohlleben et al 2001 (TRENDS in Immunology, 2001, 22/11:618-626) have studied the effects of CpG on atopic disorders such as allergic asthma. CpG-ODNs have multiple stimulatory effects on lymphocytes, including DCs, macrophages, B cells, natural killer (NK) cells and T cells (p. 619). The state of the art questions whether "CpG-ODNs can be used in humans to inhibit the development of asthma? In vitro experiments have shown clearly that human cells react to CpG-DNA in a similar manner to lymphocytes from rodents.... The results obtained from animal models suggest that it is probable that these approaches might also be successful in humans to reduce the development of atopic disorders. However, treatments using CpG-ODNs rely both on innate and adaptive pro-inflammatory Th1 immune

responses to inhibit Th2 responses. For this reason, harmful side-effects of the treatment need to be ruled out. Besides potential problem of inducing strong inflammatory responses at the site of exposure to allergen, the use of CpG-DNA could also have other serious side-effects. It has been reported that the application of CpG-ODNs can cause septic shock in mice. A further potential problem might be the development of autoimmune disease after application of CpG-DNA. Residual autoreactive T cells might become sufficiently activated to cause disease after encountering APCs that have been unspecifically activated by CpG-DNA." (p. 620, col. 2) Wohlleben et al teaches that all approaches that induce Th1 responses have the potential side-effects of Th1-cell-mediated inflammation, potentially causing serious tissue damage (p. 624, col. 1). Kline et al 2002 (Am. J. Physiol. Lung Cell Mol. Physiol., 2002, 283:L170-L179; Kline et al, J. Immunol., 1998, 160:2555-2559) teaches that a single treatment of CpG-ODN alone was ineffective in reducing the manifestations consistent with asthma in this animal model (p. L172, col. 2; see also p. L178, paragraph bridging cols. 1-2). Kline et al 2002 teaches that splenocytes from OVA-treated mice did not develop an antigen-specific Th1 phenotype. However, mice treated with CpG ODN and OVA had a marked shift toward a Th1 response to antigen as well as reduction in airway eosinophilia, serum IgE and bronchial hyperreactivity (p. L176, col. 2).

Weiner (J. Leukocyte Biology, 2000, 68:456-463) states furthermore that the molecular mechanisms of CpG oligonucleotides' immunostimulatory effects are not yet understood (see p. 461). And while the biological effects of some chemical modifications have been studied for CpG containing oligonucleotides, such as 2'-O-methyl modifications, phosphorothioate internucleotide linkages and 5-methyl cytosine substitutions, the incorporation and positioning of chemical modifications

relative to the CpG dinucleotide are highly unpredictable (see Agrawal et al Molecular Med. Today, 2000, 6:72-81, especially on pp. 78-80).

Further, Satoh et al (Fukushima Igaku Zasshi, 2002, 52/3:237-250, abstract only) teaches that CpG-ODN is responsible for worsening of allergic contact dermatitis. "S.c. applied CpG ODN one day before sensitization of naïve mice significantly enhanced the ACD to DNFB which showed severe edema with massive CD8+ T cell infiltration." (abstract) Satoh et al also teaches that "[T]hese results indicate that CpG ODN vaccinations may elicit and aggravate side effects such as harmful CD8+ T cell-mediated type IV hypersensitivity responses." (abstract) Dziadzio et al (Handbook of Experimental Pharmacology, 2004, 161(Pharmacology and Therapeutics of Asthma and COPD):273-285, abstract only) teaches that "[V]arious combinations of plasmid DNA, immunostimulatory oligonucleotide (ISS-ODN), and proteins have been studied in murine models to evaluate the effectiveness of DNA vaccination. The success in skewing the immune response towards a Th1 phenotype in mice still needs to be evaluated in humans. The use of DNA vaccination as a treatment for allergic disease remains a viable option for the future." (abstract) Barnes (European J. Internal Medicine, 2000, 11:9-20) teaches that immunostimulatory oligonucleotides are potent inducers of Th1 cytokines and in mice, administration of CpG-ODN increases the ration of Th1 to Th2 cells, decreases formation of specific IgE and reduces the eosinophilic response of allergen (p. 17). Barnes teaches that the animal studies encourage the possibility that vaccination might prevent or cure atopic disease in the future (p. 17; see also Hussain et al, J. Invest. Dermatol. Symp. Proc., 2004, 9:23-28; Serebrisky et al, J. Immunology, 2000, 165:5906-5912).

Further, Van Uden et al (J. Allergy Clin. Immnol., 1999, 104:902-910) teaches that although "ISS are generally considered by researchers in this field to be modular 6-mer units, it has been difficult to determine the minimum stimulatory motif length. One study showed that a minimum length of 18 bases was required but that a length of 22 bases gave greater activity. Another study demonstrated good activity with a 15-mer ODN. Still another study used cationic lipid transfection to show a stimulatory effect with a 6-mer ODN." (p. 904, col. 1) Van Uden et al teaches that each ISS appears to have a different minimum length because crucial flanking bases would be variably distant from the core (p. 904, col. 2). Van Uden et al indicates that the ISS *may be a promising* method of treatment/prophylaxis for allergic disease, but that there are also some potential side effects that must be considered. The "immune system is delicately balanced between immunity and tolerance, between Th1 and Th2, and between inflammation and unresponsiveness. There is always the possibility of unwanted effects of the powerful immune stimulation that ISS delivers." (p. 907, col. 2) LPS is similar to ISS, in view of this some of the same problems observed with LPS are potential problems with ISS (p. 907, col. 2). ISS could cause excessive local inflammation as seen with other powerful Th1 adjuvants, such as CFA (p. 908, col. 1).

The state of the art, taken as a whole, is still unpredictable with regard to the use of an immunostimulatory oligonucleotide in treating asthma in a subject (human or otherwise) in need of such treatment. The state of the art several years after Applicants' effective filing date teaches that the methods claimed by Applicants are still not enabled and discusses the myriad problems related to immunostimulatory oligonucleotide and asthma treatments.

The amount of direction or guidance presented in the specification and the presence or absence of working examples is a hindrance to practicing the claimed invention. Applicants have not provided guidance in the specification toward a method for treating asthma in a subject comprising the administration of any immunostimulatory oligonucleotide comprising the formulas set forth in the claims. As previously stated the specification teaches an increase in immuno-modulation in mice (and comprising conversion from a Th2 to a Thl immune response), and treatment of asthma in a mouse model comprising the administration of SEQ ID NO: 10. One skilled in the art would not accept on its face the examples given in the specification as being correlative or representative of the successful treatment of asthma in any organism (pending claims recite human, dog, cat, horse and cow) comprising the administration by any route of any immunostimulatory nucleic acid comprising the formulas in the claims in view of the lack of guidance in the specification and known unpredictability associated with the ability to predict the biological effects exerted by CpG containing oligonucleotides in any and/or all organisms/subjects. The specification as filed fails to provide particular guidance which resolves the known unpredictability in the art associated with effects provided *in vivo* in any and/or all organisms upon administration via any route of CpG containing oligonucleotides, and further whereby treatment effects are provided in any and/or all organism for asthma, which is redirecting a subject's immune response from a Th2 to a TH1 immune response. The breadth of the claims is very broad and the quantity of experimentation required is undue. The quantity of experimentation required to practice the invention as claimed would require the de novo determination of accessible target sites, modes of delivery and formulations of the CpG to target

appropriate cells and/or tissues in any and/or all organisms/subjects, and further whereby treatment effects are provided for the claimed conditions. Since the specification fails to provide particular guidance for the treatment of asthma comprising administration by any route of any CpG containing oligonucleotide (claimed formulas), and since determination of these factors for a particular CpG containing oligonucleotide and for the particularly claimed conditions, route of administration and organism is highly unpredictable, it would require undue experimentation to practice the invention over the broad scope as presently claimed.

The examples provided evidence of the induction of various interleukins in spleen, liver or thymus cells are not representative of the successful treatment of asthma, which is redirecting the subject's immune response from a Th2 to aTh1 immune response, using any CpG containing oligonucleotide. No correlation is taught in the instant disclosure between the ability of these CpG containing oligonucleotides to induce a Th1 response in vitro (e.g. amount of IL-6 induction) and their ability to treat asthma *in vivo*. An assumed common mechanism of action does not ensure enablement for treatment. Effective delivery to appropriate and concentration of a particular CpG containing oligonucleotide necessary for providing treatment for asthma (i.e. redirection from Th2 to Th1 immune response in a subject) for a particular CpG containing sequence are still highly unpredictable. The success of redirecting a subject's immune response from a Th2 to a Th1 immune response with SEQ ID NO: 10 is not necessarily representative or correlative of the ability to successfully redirecting a subject's immune response from a Th2 to a Th1 immune response with any of the generic sequences claimed and the myriad possibilities of CpG sequences encompassed by the claims. The *in*

vivo treatment success for these generic sequences require undue experimentation beyond that provided in the instant disclosure.

Finally, it should be noted that whether the specification would have been enabling as of the filing date involves consideration of the nature of the invention, the state of the prior art, and the level of skill in the art. The initial inquiry is into the nature of the invention, i.e., the subject matter to which the claimed invention pertains. The nature of the invention becomes the backdrop to determine the state of the art and the level of skill possessed by one skilled in the art.

The state of the prior art is what one skilled in the art would have known, at the time the application was filed, about the subject matter to which the claimed invention pertains. The relative skill of those in the art refers to the skill of those in the art in relation to the subject matter to which the claimed invention pertains at the time the application was filed. See MPEP § 2164.05(b).

The state of the prior art provides evidence for the degree of predictability in the art and is related to the amount of direction or guidance needed in the specification as filed to meet the enablement requirement. The state of the prior art is also related to the need for working examples in the specification.

The state of the art for a given technology is not static in time. It is entirely possible that a disclosure filed on January 2, 1990, would not have been enabled. However, if the same disclosure had been filed on January 2, 1996, it might have enabled the claims. Therefore, the state of the prior art must be evaluated for each application based on its filing date.

35 U.S.C. 112 requires the specification to be enabling only to a person "skilled in the art to which it pertains, or with which it is most nearly connected." In general, the pertinent art should be defined in terms of the problem to be solved

rather than in terms of the technology area, industry, trade, etc. for which the invention is used.

The specification need not disclose what is well-known to those skilled in the art and preferably omits that which is well-known to those skilled and already available to the public. In re Buchner, 929 F.2d 660, 661, 18 USPQ2d 1331, 1332 (Fed. Cir. 1991); Hybritech, Inc. v. Monoclonal Antibodies, Inc., 802 F.2d 1367, 1384, 231 USPQ 81, 94 (Fed. Cir. 1986), cert. denied, 480 U.S. 947 (1987); and Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co., 730 F.2d 1452, 1463, 221 USPQ 481, 489 (Fed. Cir. 1984).

The state of the art existing at the filing date of the application is used to determine whether a particular disclosure is enabling as of the filing date. > Chiron Corp. v. Genentech Inc., 363 F.3d 1247, 1254, 70 USPQ2d 1321, 1325-26 (Fed. Cir. 2004) ("a patent document cannot enable technology that arises after the date of application").< Publications dated after the filing date providing information publicly first disclosed after the filing date generally cannot be used to show what was known at the time of filing. In re Gunn, 537 F.2d 1123, 1128, 190 USPQ 402,405-06 (CCPA 1976); In re Budnick, 537 F.2d 535, 538, 190 USPQ 422, 424 (CCPA 1976) (In general, if an applicant seeks to use a patent to prove the state of the art for the purpose of the enablement requirement, the patent must have an issue date earlier than the effective filing date of the application.). While a later dated publication cannot supplement an insufficient disclosure in a prior dated application to make it enabling, applicant can offer the testimony of an expert based on the publication as evidence of the level of skill in the art at the time the application was filed. Gould v. Quigg, 822 F.2d 1074, 1077, 3 USPQ2d 1302, 1304 (Fed. Cir. 1987).

In general, the examiner should not use post-filing date references to demonstrate that the patent is non-enabling. Exceptions to this rule could occur if a later-dated reference provides evidence of what one skilled in the art would have known on or before the effective filing date of the patent application. In re Hogan, 559 F.2d 595, 605, 194 USPQ 527, 537 (CCPA 1977). If individuals of skill in the art state that a particular invention is not possible years after the filing date that would be evidence that the disclosed invention was not possible at the time of filing and should be considered. In In re Wright, 999 F.2d 1557, 1562, 27 USPQ2d 1510, 1513-14 (Fed. Cir. 1993) an article published 5 years after the filing date of the application adequately supported the examiner's position that the physiological activity of certain viruses was sufficiently unpredictable so that a person skilled in the art would not have believed that the success with one virus and one animal could be extrapolated successfully to all viruses with all living organisms. Claims not directed to the specific virus and the specific animal were held nonenabled.

12. Claims 19-39 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 19-39 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: the preamble does not state whether this treatment is for a subject or if it is an *in vitro* treatment.

13. No claims are allowed.

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to N. M. Minnifield whose telephone number is 571-272-0860. The examiner can normally be reached on M-F (8:00-5:30) Second Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynette R.F. Smith can be reached on 571-272-0864. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

N. M. Minnifield
Primary Examiner
Art Unit 1645

NMM
June 27, 2005